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THE PLANT DISEASE REPORTER

ISSUED BY THE OFFICE OF MYCOLOGY AND DISEASE SURVEY

Volume XIII **Number 9**

September 15, 1929

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE PLANT DISEASE REPORTER

Issued by

THE PLANT DISEASE SURVEY

OFFICE OF MYCOLOGY AND DISEASE SURVEY

Vol. XIII September 15, 1929 Number 9

OFFICE NOTES.

DRY SEASON INFLUENCES DISEASES

So much dry weather has been experienced during the present season, and its effects on crops and influence on diseases so marked, that the situation deserves special comment. On other pages of this publication there will be seen reports of drying up of potato and onion fields in Massachusetts, the absence of anthracnose in Minnesota, the scarcity of leaf spot of tomatoes in the same state, and the checking of apple scab development in New England. Numerous other reports showing the influence of dry weather conditions on disease development have been received. The following brief statement with regard to summer rainfall, together with maps adapted from those published by the Weather Bureau, (Weekly Weather and Crops Bul. 32 and 37, 1929) gives an idea of the actual conditions

July Precipitation

According to the United States Department of Agriculture Weekly Weather and Crop Bulletin (1929, No. 32) -

> "The rainfall for July was unusually spotted, with many sections east of the Rocky Mountains having very scanty amounts, and others, often nearby having more than the July normal falls. Moisture was especially scanty in the middle and north Atlantic areas and in much of the Spring Wheat Belt. In the latter, Moorhead, Minn., had but 26 per cent of the normal; Bismarck, N. Dak., 50 per cent; Williston, N. Dak., 32 per cent; and Havre, Mont., only 5 per cent of the normal July fall. On the other hand, parts of the Southwest had much more

than the usual amount for this month, especially from southwestern Colorado southward, while a belt extending from southern Iowa eastward over the northern portions of the Ohio Valley also had more than normal rainfall. In the Cotton Belt most first-order stations reported less than the normal amount."

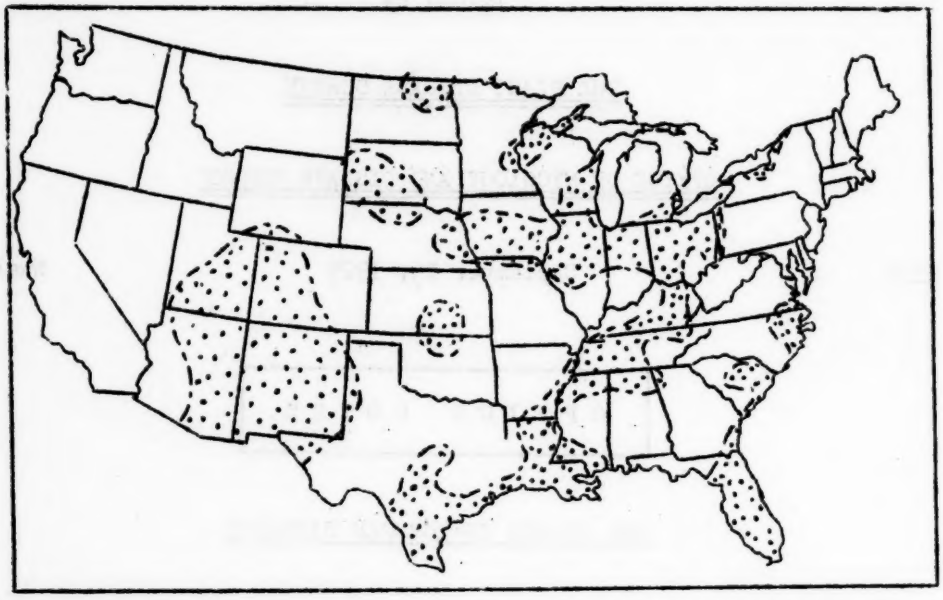

Fig. 2. July precipitation. Above normal shaded, below normal unshaded.

August Precipitation

August was characterized by an unusually widespread deficiency of rain from the Great Plains eastward. Quoting further from the Weekly Weather and Crops Bulletin (1929, No. 37) -

"A few local areas, principally in the south Atlantic coast section and in the central Mississippi Valley, had normal or somewhat above normal precipitation, but elsewhere there was a deficiency quite generally. In an area extending from western Arkansas and eastern Oklahoma southward over much of Texas there was less than one-fourth the normal amount and a considerable section had no measurable precipitation during the entire month. In the interior of the Southeast another area is shown with less than one-fourth the normal, while in the Central and Northern States most sections had less than half the normal August fall. Western Nebraska, southeastern Wyoming, eastern Colorado, northern New Mexico, and much of Arizona had more than the normal precipitation, which also was the case in some northern Rocky Mountain sections. At the close of the month there was a widespread need for rain throughout the principal agricultural portions of the country."

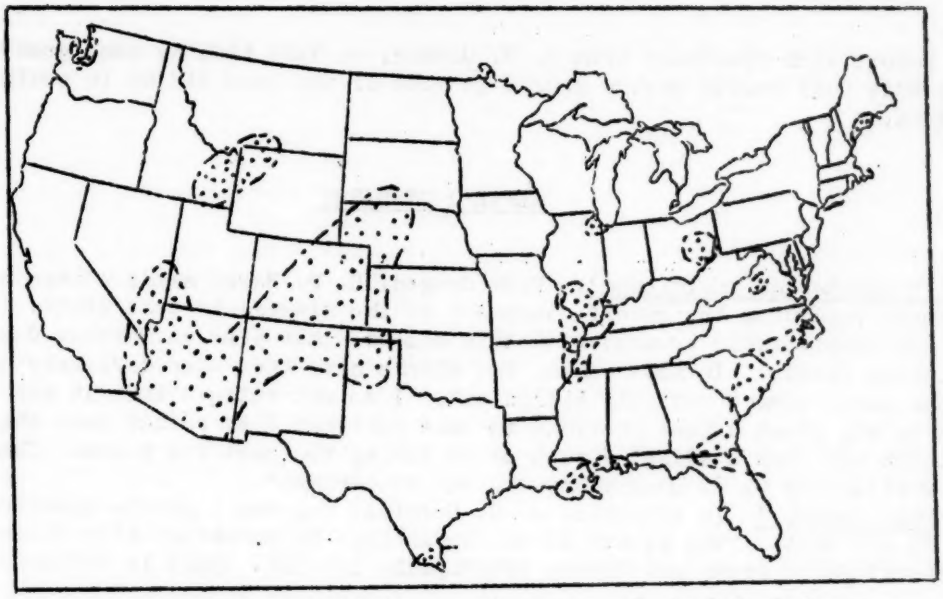

Fig. 3. August precipitation. Above normal shaded, below normal unshaded.

September Rainfall

Weather reports for the week ending September 10 indicate that fairly widespread local rains and showers of the week had done considerable towards relieving drougth conditions in the Plains States, Central valleys and in most of the eastern sections.

DISEASES OF CEREAL AND FORAGE CROPS

DISEASES OF OATS IN WISCONSIN

Smuts (Ustilago avenae and U. levis). Much less than last year even on untreated seed. Treatments o.k. except where seed was dusted with Ceresan or Oats Dust and planted at once. Seed dusted and allowed to stand for a week or more gave plants very free from smut.

Leaf rust (Puccinia coronata). More than usual. Combined with stem rust to produce heavy losses, especially in southern section of state.

Stem rust (Puccinia graminis). More than usual. Crop very light in many fields. (R. E. Vaughan, Aug. 12)

TIMOTHY RUST (PUCCINIA GRAMINIS)

A report with specimens from J. F. Garber, an Iowa timothy seed grower, says that this rust caused severe damage in some of the seed fields in southeastern Iowa.

ALFALFA DISEASES

Wilt (Bacterium insidiosum). From Oregon, H. P. Barss sends a more detailed report regarding the recent discovery of the disease in that state: "We have had considerable trouble with this disease this year in Malheur County in the alfalfa fields. In most cases, the stands have been very seriously cut and in some cases almost entirely killed out. I do not believe that it has ever been here to any great extent previous to this year but I am rather sure that some of the fields have had a slight amount of it during the past few years. The disease was verified by C. W. Hungerford who saw specimens."

Girdle (undet.) In Arkansas, J. G. Horsfall reports a girdle disease which affected 75 per cent of the plants in one locality. He considers this disease to be that described by Brown and Gibson (Phytopath. 12: 188. 1922) in Arizona.

DOWNY MILDEW OF SOYBEAN REPORTED FROM NEW ENGLAND

W. L. Doran reports from Amherst, Massachusetts the following: "There are about twenty varieties of soybeans growing here in the Experiment Station plots. One variety, Illini, has on it downy mildew (Peronospora manshurica). So far as I know, downy mildew of soybeans has not previously been reported from New England."

A second note, September 11, reported the further occurrence on other varieties: Itosan, Pinpu, Manchu, Black Eyebrow, Dunfield, Mansoy and Harbinsoy.

FRUIT DISEASES

REPORT ON STRAWBERRY VIRUS DISEASE PROJECT

By

A. G. Plakidas

In the August 1, 1929 issue of the Plant Disease Reporter it was stated, in a brief note, that a cooperative project had been undertaken between the Bureau of Plant Industry and the Louisiana Experiment Station for the purpose of making a comparative study of strawberry diseases which are suspected of being of a virus nature. In the same report it was stated that "most of the plants sent in thus far have seemed to be affected with the same disease.

This disease, which has thus far been found only in the Northern and Eastern States and Canada is undoubtedly different both from the xanthosis or yellows of the Pacific Coast and from the dwarf of the Southern States. Yellowing is the most striking symptom of this disease. The yellow color of the affected plants is so prominent that the diseased plants in a field may easily be seen from a distance. In extreme cases, as much as 90 per cent of the area of a leaf may be devoid of chlorophyll. The yellow color is usually of a light hue -- nearly albino. The affected leaves usually show a mosaic-like pattern of mottling or marbling, a fact which has led many of those who have seen the disease in the field to designate it as mosaic. The yellow leaves appear thinner than the healthy green ones. Curling, crinkling, cupping, or twisting of the leaflets are rare. The affected plants become stunted and dwarfed; and, when in this condition, very few berries are produced. Those who have observed the disease for more than one season report that the symptoms are most prominent during the cool weather of the spring months. The yellowing practically disappears in late summer. The disease seems to be of a systemic nature, all runner plants of a diseased mother being affected.

Suggestions for a name for this disease will be welcome, for it is highly desirable that all call it by the same name. Although the symptoms strongly suggest that the disease is of virus type, until we know something definite about its nature, it is considered unsafe to call it mosaic. The term "yellows" would be very fitting. Unfortunately this term has already been used as a synonym with xanthosis to designate the virus disease of the strawberry in California. It would simplify matters if we all agreed to call the California disease only by the name xanthosis and apply the term yellows to this new disease which lacks a name.

The following specimens were received this summer, all of which appeared to be affected with the same disease:

Variety	Locality	Sender
Beaver	Toma, Wis.	R. E. Vaughan
Eaton	St. Catharines, Can.	G. H. Berkeley
"	Menomonie, Wis.	R. E. Vaughan
"	Scio, N. Y.	R. French
Glenmary	Kenosha, Wis.	L. M. Blank
Howard 17	Concord, Mass.	E. F. Guba
Mastodon	Horseheads, N. Y.	C. D. Chupp
Peerless	Andover, Mass.	G. Rennie
Premier	Scio, N. Y.	R. French
Seedling #5	" "	"

In addition, the disease was seen in the field under natural growing conditions, either by A. G. Plakidas or Neil E. Stevens, on the following varieties:

Variety	Locality	Date
Eaton	St. Catharines, Can.	June, 1929
"	Geneva, N. Y.	" "
Howard 17	Concord, Falmouth and Marshfield	" "
"	Auburn, Me.	July "
Peerless	Concord, Mass.	June "
Superb	New Brunswick, N. J.	July "
Van Dyke (Vineland seedling 19322)	Vineland Ex. Sta., Can.	June "
Van Dyke	New Brunswick, N. J.	July "
Vineland 2532192	Vineland Ex. Sta., Can.	June "
Wyona	New Brunswick, N. J.	July "

Furthermore, what apparently is the same disease has been seen by other workers in Michigan, Ohio, Illinois, and Minnesota on several different varieties.

Most of the plants sent in this summer have been kept alive in our "sick collection" and transmission experiments have been started, the results of which will not be known for some time. It is planned to send out a call for additional specimens early next spring, and so the various workers are requested to be on the lookout for any strawberry troubles which are suspected of being of a virus nature. The cooperation of the many collaborators on this matter will be greatly appreciated. The writer desires to thank those who have assisted this year in furnishing information and material.

ILLINOIS PEACH DISEASES

Collaborators H. W. Anderson and Gilbert L. Stout have reported on the Illinois peach disease situation under dates of August 28 and September 5, respectively.

Brown rot (Sclerotinia fructicola). In general this disease was not serious in the orchards. Practically all brown rot was due to curculio injury or cracked fruit. Curculio injury was somewhat worse than usual, hence, considerable brown rot developed in transit. (Anderson)

The brown rot situation in Illinois was not very serious this year as such, but in orchards where worms were particularly bad, there was a great deal of brown rot following their injury. This was particularly true of J. H. Hale variety. (Stout)

Bacterial spot (Bacterium pruni). Very severe on Hale fruit throughout the state. In general not so severe on Elberta, but in the Olney-Flora region the infection on this variety was abundant. Leaf infection was generally severe but defoliation was not as serious as usual. (Anderson)

In southern Illinois fruit of the J. H. Hale variety was infected to the extent of 95 to 98 per cent, but in many cases the infection was not quite so severe on the individual fruit as it has been in past years. Many orchards of Elberta were rather free from shot hole infection, but other orchards showed considerable infection on the fruit. It did not seem to me that the leaves had as much infection as last year. This goes for all varieties. (Stout)

Scab (Cladosporium carpophilum). Observed on a number of unsprayed orchards of odd varieties but was not present in the commercial peach orchards of standard varieties such as Hale and Elberta. (Anderson)

In unsprayed orchards there was, as usual, a great deal of scab, but there was little this year in the commercial well-sprayed orchards. It was not a factor in the commercial crop. (Stout)

Yellows (virus). Several new cases have been found in western and southern Illinois. Surveys are being conducted by the State Natural History Survey to find the extent of the disease. (Anderson)

Rhizopus rot (Rhizopus nigricans). This rot was responsible for more loss in transit than brown rot. It was very general on wormy fruit and on fruit injured by cracking or split seeds. (Anderson)

Spray injury. An unusual amount of injury to the fruit occurred on weak trees. This was traced to unfavorable weather combined with spray applications at critical times. It was found to some extent on unsprayed orchards but was generally most severe on dusted or sprayed trees. This injury did not occur on vigorous trees. The lesions were mostly on the exposed face of the fruit. (Anderson)

LITTLE PEACH IN MICHIGAN

Dr. M. B. Waite has just called attention to a note from L. M. Hutchins who wrote on August 27 that while in Michigan recently he spent a little time looking over the territory in which "little peach" is reappearing. From what he saw there appears to be a predominance of little peach rather than yellows, and in some orchards it is becoming severe. One orchardist has cut down probably one hundred trees in his eight-year old orchard and incidently it was noticed that he had missed several which were in the early stages. Some sentiment was evident in favor of re-establishing the old inspection system in the section.

Commenting on this report, Dr. Waite states:

> "Little peach, along with yellows, has occurred in very reduced quantities in Michigan for the last ten years. In fact, both of these diseases almost, but not quite, died out. We have been expecting this very thing, namely, that they would come back. The preponderance of little peach over peach yellows in Allegan County is a repetition of the conditions of thirty years ago, when the little peach outbreak in Michigan was at its height."

CHERRY LEAF SPOT IN ILLINOIS

The epiphytotic of Coccomyces hiemalis by this time has caused the greater majority of cherry trees in Illinois, particularly in the southern part, to have lost 75 to 95 per cent of their leaves. (G. L. Stout, Sept. 5)

MORE APPLE SCAB REPORTS

Maine: According to State Horticulturist and others who have traveled through the orchard sections of the state, the disease is much less obvious than in 1928, which was a year of severe attack. The apparent explanation is lack of rainfall, water shortage in wells, brooks, and soil being acute at times in the apple-growing region. In Aroostook County, on the other hand, there has been too much rain in general. (D. Folsom, Sept. 3)

Massachusetts: Very rainy weather previous to May 25 gave cause for another epidemic year for scab but continued dry weather from then until September checked the disease. In general apples are clean. (E. F. Guba, Sept. 1)

NOTE ON CEDAR RUSTS

In a letter from Harvey E. Thomas, September 3, the following note occurs:

"On May 28 and 29 I examined red cedars at 8 to 12 stops along National Highway 30 from Dewitt, Iowa to Lexington, Neb. G. juniperi-virginianae was common and was found as far west as Lexington, Neb. G. globosum was found near Cedar Rapids and Jordan, Iowa, and Fremont, Neb. In one case (Cedar Rapids) it was abundant on the cedars. G. germinale was not found."

PEAR BLIGHT (BACILLUS AMYLOVORUS)

Massachusetts: In June, saw considerable. Some in July but seemed to be checked later. (W. H. Davis, Sept. 8)

Wisconsin: A few cases noted near Milwaukee. (R. E. Vaughan, Sept. 5)

Oregon: Much more serious in Rogue River Valley than usual. Reported also from Douglas County (Umpqua Valley). (H. P. Barss, Sept. 3)

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DISEASES OF VEGETABLE AND FIELD CROPS

DRY WEATHER INJURY TO POTATOES AND ONIONS IN MASSACHUSETTS

By the last week in August, practically all potato fields in eastern Massachusetts were ready to dig as result of drought. No diseases observed but many specimens brought to my laboratory suspected of being blighted were dried up as result of drought. (E. F. Guba, September 1)

Tip burn of onion, due to dry weather is considerable on sandy and gravely soil. Have noticed in one field 2 per cent of the onions dried up and dead due to drought. (W. H. Davis, September 8).

REPORT ON TOMATO DISEASES IN FLORIDA

G. F. Weber sent in the following interesting report (August 6):

Stemphylium leaf spot recently prominent in the state, caused more damage than any other tomato disease during the past season. Lower leaves were "fired" early and at mid season, 100 per cent infection was common. Found on both Coasts in increasing destructiveness.

Early blight (Alternaria solani) was very common on the fall crop, especially pineland plantings. It developed slowly throughout the winter and in early spring caused considerable damage over the whole tomato area. About the same as last year.

Leaf mold (Cladosporium fulvum) was less than previous season; more common on West Coast plantings than elsewhere in the state. Not important.

Nailhead (Macrosporium tomato) occasionally of much importance, was rare last season, less than 1/10 of 1 per cent found in experimental check plats on both East and West Coast.

Bacterial spot (Bacterium vesicatorium) was scarce on East Coast but common on West Coast, especially in local areas where 10 to 15 per cent losses occurred.

Anthracnose (Colletotrichum phomoides) was collected several times but not common.

Black rot (Phoma destructiva) was very common and destructive on the fall crop, probably worse than any time previous. There was less of it on the winter and spring crops.

Soil rot (Rhizoctonia solani) was not so common as during the previous seasons. Local depending on soil and moisture during growing season.

Buckeye rot (Phytophthora terrestris) was less than last year, probably because of less rainfall.

Blossom-end rot (Non-parasitic) was more common than last year, especially on the crop in Central Florida.

Fusarium wilt (Fusarium lycopersici) was well distributed over whole of Florida tomato growing area. Probably the worst of our tomato diseases at the present time, losses probably 5 to 10 per cent. Worse this year than last.

Bacterial wilt (Bacterium solanacearum) was widespread, more prominent than last season, not important.

Southern blight (Sclerotium rolfsii). Widely scattered and of some importance on the late central Florida crop, about the same as last year.

Mosaic. About the same as last year on the West Coast and higher per cent of infection on the winter East Coast crop.

DISEASES OF DRY BEANS IN MINNESOTA

The following observations are based on a survey trip in Isanti County, where practically all of the dry beans in Minnesota are grown. The most interesting observation was the extremely heavy outbreak of bacteriosis. (J. G. Leach, September 7)

Bacteriosis (Bacterium phaseoli). In Isanti County where bean growing in Minnesota is centered, this disease has been very destructive, most fields showing 100 per cent infection of plants with complete destruction of many pods. Average loss estimated at 25 per cent. This was in spite of a very dry season on rather sandy soil.

Anthracnose (Colletotrichum lindemuthianum). Very scarce. None observed in Isanti County where dry weather has prevailed.

Rust (Uromyces appendiculatus). Observed only in one field in Isanti County where infection was rather light. Injury less than 1 per cent.

MISCELLANEOUS REPORTS ON DISEASES OF VEGETABLES

POTATO

Virus diseases in Massachusetts. Very prevalent in latter part of July and August. First week in August, counted 50 per cent of plants in one plat infected. (W. H. Davis, September 8).

SWEET POTATO

Stem rot (Fusarium spp.) in Illinois. The usual slight amount of stem rot was present this year in the commercial planting, damage ranging from a trace to 2 per cent of the plants. In some small garden patches, 50 to 90 per cent of the plants were killed. It is quite likely that in these cases the infection was carried from the seed bed although that is not necessarily the case. (Gilbert L. Stout, September 5).

CANTALOUPE

Leaf blight (Macrosporium cucumerinum) in Illinois. The cantaloupes in Union County looked very fine until the harvest was getting well under way, after which there was a rainy spell followed by a rather severe attack of Macrosporium cucumerinum. This is an annual occurrence in southern Illinois but sometimes it occurs earlier than it did this year. This time a large part of the crop was harvested before the vines were severely injured. (Gilbert L. Stout, September 5).

TOMATO

Leaf spot (Septoria lycopersici) in Minnesota. This disease has been less prevalent than usual on account of dry weather.

Blossom-end rot (Non-parasitic) in Minnesota. This trouble has been very prevalent this season especially on the lighter soils. (Sect. Pl. Path.).

COTTON ANTHRACNOSE (GLOMERELLA GOSSYPII)

Anthracnose seems to be much more widespread and destructive over the northern half of Louisiana than usual; while in the section around Baton Rouge there is very little of the disease appearing. (E. C. Tims, August 14).

GINSENG DISEASES IN NEW YORK

A two day trip in company with Mr. Thomas Regan, a ginseng grower at Camden, New York, was made through northern New York on August 9 and 10 to visit ginseng gardens. About a dozen gardens were visited at Camden, Antwerp. Degrasse, Dekalb, and Fine in Oneida, Jefferson, and St. Lawrence counties.

Some of the finest stands of mature ginseng which the writer has ever seen were encountered at Degrasse and Fine. In these gardens there was almost complete absence of any root troubles. One or two plants affected with the Verticillium wilt (V. alboatrum) were found. No trace of the Ramularia rust, so common and destructive in most ginseng gardens, was seen. In one garden at Degrasse and in the one large garden at Fine, the Alternaria blight (A. panax) was beginning to cause considerable injury. The other gardens visited at these two places, however, were free from blight. Spraying with Pyrox was practiced by all of these growers and was probably responsible for the absence of blight. The one small garden visited at Dekalb was also strikingly free from diseases of all kinds.

The two large gardens at Antwerp were in very bad condition due primarily to root rot troubles, especially the rust. One of these gardens was suffering severely from protracted drouth having been planted on light sandy soil on top of a knoll.

The large garden of Mr. Regan at Camden is practically free this year from Alternaria blight. During the seasons of 1927 and 1928, the blight swept Mr. Regan's gardens and practically destroyed all of the tops by the middle of August. Last year, at my suggestion, he made a complete clean-up of the gardens, removed all the tops of the plants in the early autumn, raked off all the mulch and hauled it away. He then covered the beds with a new mulch of sawdust.

This year he has sprayed thoroughly and consistently with Pyrox and has every prospect of harvesting a fine crop of seed with practically no loss from blight. Experimental work in this garden during the past two years has demonstrated very clearly that the efficiency of Pyrox in the control of the Alternaria blight is due primarily to its content of calcium arsenate. Laboratory tests made last year showed very clearly that calcium arsenate is the effective fungicidal ingredient of sprays which are effective in the control of this fungus. Beds sprayed this year with Bordeaux mixture 4-4-50 to which was added calcium arsenate are standing up just as free from disease as is the rest of the garden sprayed with Pyrox.

Golden Seal which is grown to some extent in nearly all the gardens visited showed more or less Botrytis blight. In some of the gardens, the disease was very destructive having already killed from 25 to 50 per cent of the leaves. A Fusarium wilt disease which has been causing considerable concern to the Golden Seal growers in the past few years was found in two gardens, in one of which it was very destructive. (H. H. Whetzel).

TOBACCO DISEASES IN WISCONSIN

The following notes are sent in by James Johnson (August 26):

Wildfire (Bacterium tabacum). Only about 25 fields known to be affected. Little or no actual damage in majority. Two or three cases known where the infection is comparatively heavy, though the actual loss may not be large.

Blackfire (B. angulatum). No epidemic of the disease this year, as was apparently the case last year late in the season. Small amounts of infection in fields are, however, common.

Black root-rot (Thielavia basicola). Injury from this disease appears to be gradually diminishing from year to year apparently due to the increasing use of resistant strains. Probably not more than 5 per cent of the fields are affected to an appreciable extent.

Brown root-rot (Cause uncertain). An unusually large amount of this trouble seems to be present in Wisconsin this year. The "disease" is associated with soil which has recently been in sod, i.e., 1 to 4 years removed from sod slow and uneven growth and rotted roots characteristic. Apparently 50 per cent of the crops more or less affected.

As usual, mosaic may be found in most any field in small amounts. Very few fields seem to be seriously affected at this time. Some fields are known, however, which have 75 per cent to 95 per cent infection.

Serious hail storms hit several sections of the Wisconsin tobacco growing region, seriously damaging or completely ruining approximately 1/5 of the total acreage.

TOBACCO WILDFIRE (BACTERIUM TABACUM) IN MASSACHUSETTS

Wildfire was present last spring in the usual number of seed beds, but so far as I know, it is not present in any fields here in August. We had less rain in July and August of 1929 than in those months of any year since 1894. (W. L. Doran, September 6).

DISEASES OF ORNAMENTALS

PHLOX BLIGHT

Many inquiries have come to the Department of Agriculture during the past two years regarding a disease known as phlox or leaf fall. In badly affected plants the lower leaves become spotted, gradually turn brown and die. Usually the whole plant is destroyed although sometimes only a few shoots in a clump. We have had either specimens showing this diseased condition or letters describing it from the following states: Maine, Massachusetts, Vermont, New York, New Jersey, Pennsylvania, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Pennsylvania, Kentucky, Ohio, Indiana, Illinois, Iowa, and the District of Columbia.

While making a special study of this trouble, a number of fungi have been isolated from diseased phlox in addition to those recognized as true pathogens of this plant. Although there may be no relationship between some of the organisms and the diseased condition of the plants, certain ones have been consistently found on diseased phlox from several different states. The following fungi of undetermined species have been found frequently associated with unhealthy phlox plants: Cladosporium, Colletotrichum, Dematium, Gloeosporium, Kabatiella, Phyllosticta, Pleosphaerulina, and Vermicularia.

Some inoculations have been made to prove the pathogenicity of six of the above mentioned organisms. While several inoculated plants showed infection blight is so prevalent in phlox in this locality that there was a question as to whether or not the stock used was free from disease. The experiments will be repeated with plants known to be disease free, before the evidence of pathogenicity is conclusive. (E. Aline Fonner, September 12).

DAHLIA - MOSAIC

Last week, I was in Jefferson County, Pennsylvania and in the majority of the farms that I visited where dahlias were in the home garden, I found fully 80 per cent of them mosaic. There was a typical mottling of the leaf dwarfing of the plant and a blasting of the flower. (G. L. Zundel, September 4).

SOME SPECIMENS RECEIVED

The following powdery mildews have recently been received. Although they doubtless have been observed before, all of them happen to be the first reports to the Survey from the states where they were collected.

Erysiphe polygoni DC., on Delphinium sp., Amherst, Massachusetts. September 2. Collected and determined by W. H. Davis. Erysiphe polygoni DC., on Polygonum aviculare; Microsphaera alni (Wallr.) Wint., on Lonicera sp.; Erysiphe cichoracearum DC., on Verbena hastata collected by C. A. Ludwig at Brookville, Indiana and determined by R. J. Haskell.